Appendix I
Subarea Master Plan

ESA

SADDLE CREST SUB AREA MASTER PLAN

January 2012

Prepared for:

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Project No. 2TRA131600

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1.0 Project Overview

1.1 General Description

The proposed Saddle Crest development encompasses hillside terrain within the County of Orange's Foothill Trabuco Specific Plan area. This single development project is under the single ownership of Rutter Santiago, LP, and this owner/developer has prepared and submitted a tentative tract map application (TTM 17388) and a planning application for approval of an area plan, a change of zone, a specific plan amendment, and a general plan amendment for the project. The County's consultant is currently preparing an EIR and a screencheck was submitted in November, 2011.

The Saddle Crest project is located on the north side of Santiago Canyon Road just west of the existing Beazer Homes development (Santiago Canyon Estates). The location of the proposed development along with the proposed area for development is shown on **Figure 1-1**. As shown on this exhibit, the most northerly areas of highest elevation are left in open space, as are substantial areas within the development areas and scenic preservation areas are reserved along Santiago Canyon Road.

1.2 Proposed Development

The proposed land use plan for the project calls for the development of 65 single family residences on approximately 35 acres, including private streets with the remainder of the total 113.6 acres of the project in slopes, open space, or utility sites/easements. Saddle Crest is the most westerly project of a previous development proposal that also included Saddle Creek North (including the Watson parcels) and Saddle Creek South and a SAMP was prepared for the entire three developments in 2003 by Trabuco Canyon Water District. Together this entire previous project included 162 estate density homes on a total of 600 acres with an overall density of 3.7 acres per unit. Since the 2003 SAMP was prepared, the developer has transferred ownership of the Saddle Creek North property (APN 858-031-01) to The Conservation Fund and the Saddle Creek South property (APN 856-021-03&19, and APN 856-021-08, 14 & 18) to the Orange County Transportation Authority (OCTA) and all of that land has been designated as permanent open space. The development lot layout for the Saddle Crest project is shown on **Figure 1-2**. A table showing the original owners of the four assessor parcels that make up the current Saddle Crest development and the acreage of each is shown on **Table 1-1**.

Table 1-1
Original Parcel Ownership

Saddle Crest Development	Acreage	Assessor's Parcel No.
Edgar (Panter Ranch)	32.65	858-011-09
Lutheran Church (Austin)	14.65	858-011-08
Shefflette (Panter Ranch)	18.94	858-011-06 & 07
7th Day Adventist Church	47.37	858-021-02, 16 & 17*
Total	**113.61**	

*Parcels -16 & 17 were previously Parcel -01

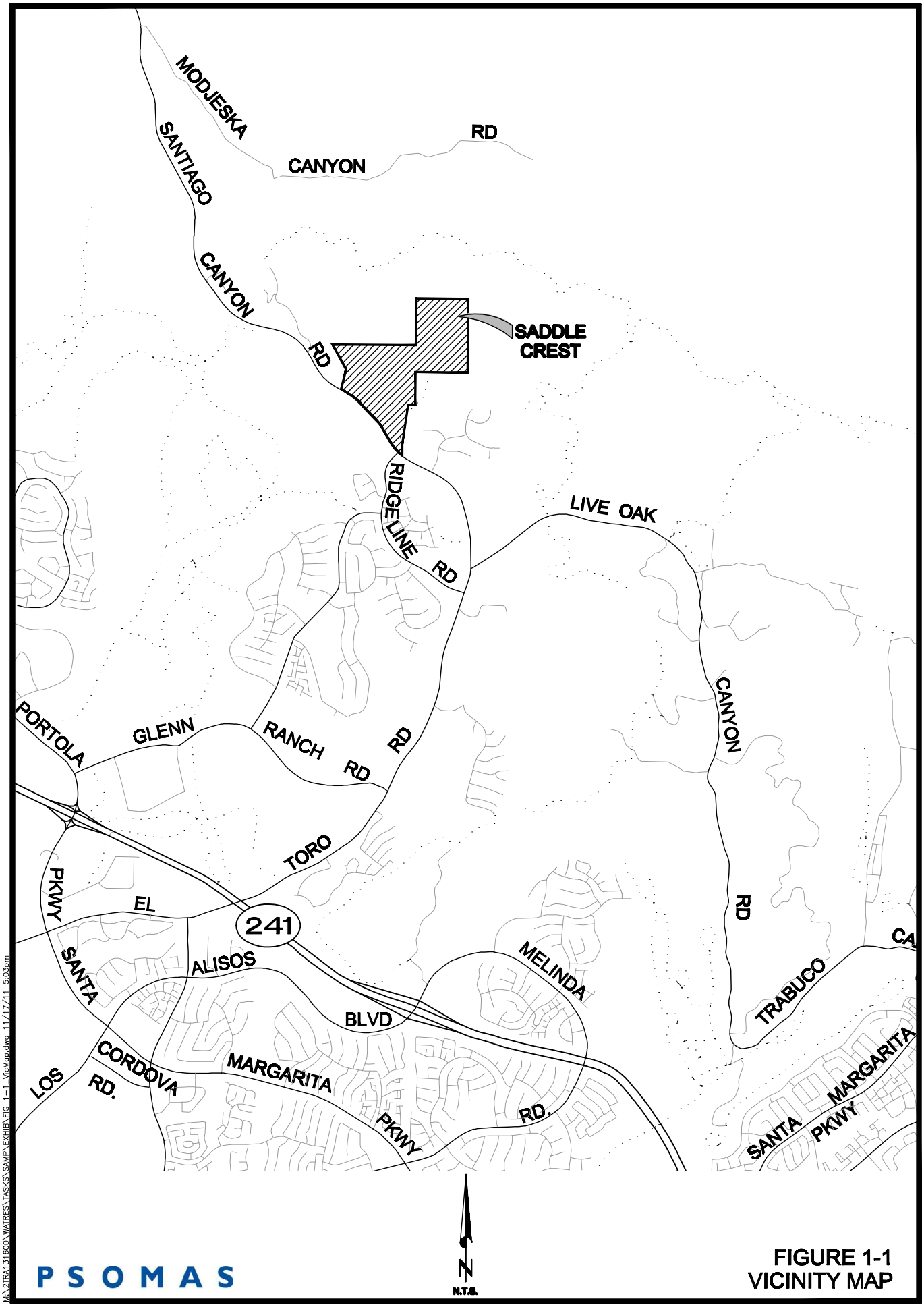

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FIGURE 1-1
VICINITY MAP

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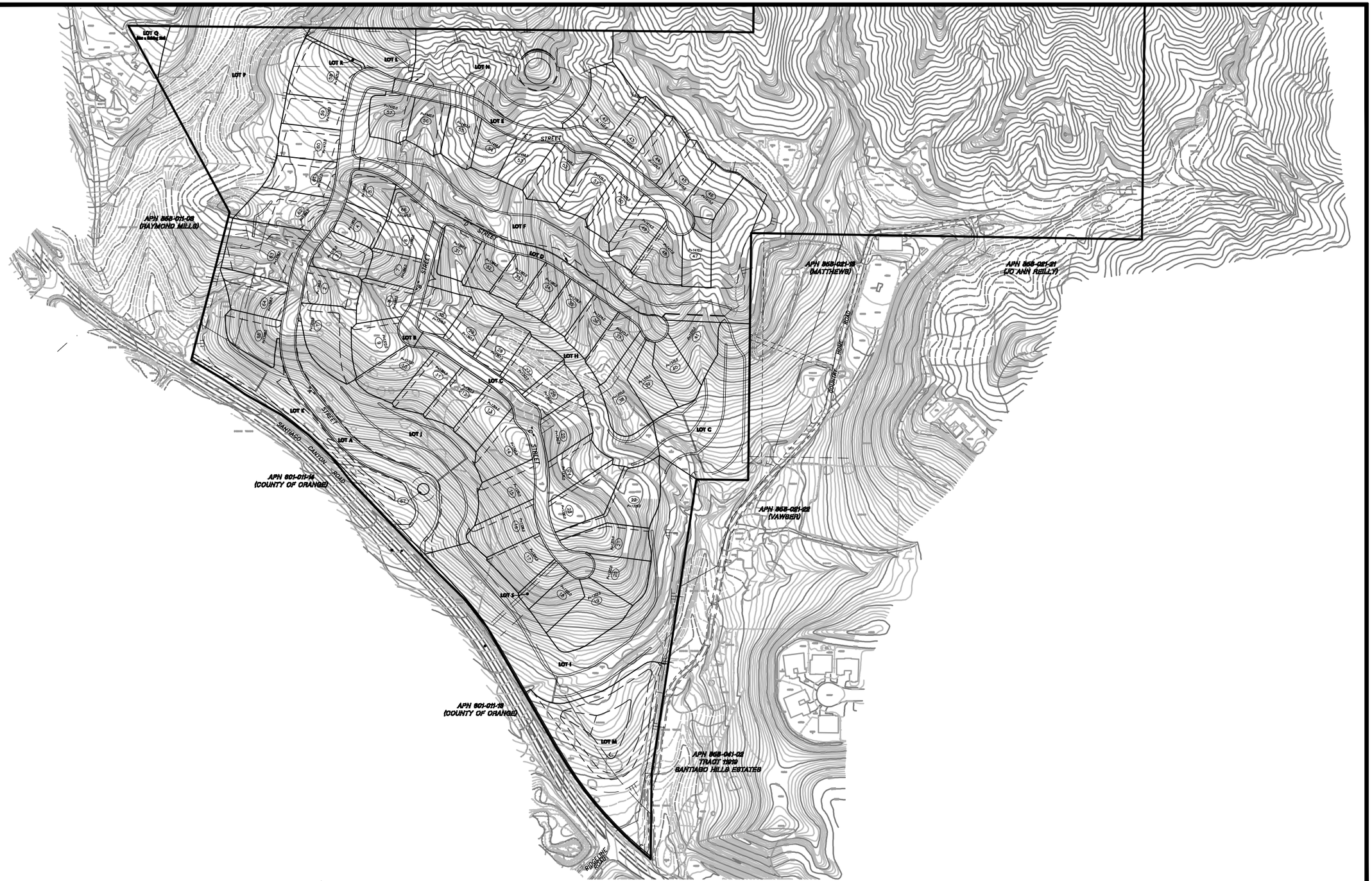

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SCALE: 1"=300'

FIGURE 1-2
SADDLE CREST
DEVELOPMENT PLAN

1.3 Urban Water Use Targets

The California Department of Water Resources requires urban water suppliers to prepare and adopt an Urban Water Management Plan (UWMP) every five years. UWMP's are designed to evaluate a retail water supplier's water demand and supplies in order to meet current and future growth within their respective service areas. Since 1999, there have been major legislative changes at the state level which impacts how water is allocated by water purveyors like TCWD. These water conservation-based legislative changes are included in TCWD's 2010 UWMP.

The most significant piece of water conservation-based legislation to affect retail water suppliers in recent years is SBx 7-7, enacted in 2009. SBx 7-7 requires the development of urban water use targets to achieve a twenty percent reduction in per capita daily water use by December 31, 2020. TCWD's methodology for determining its water use target to comply with SBx 7-7 is detailed in the 2010 UWMP. The 2020 water use target for TCWD is 181 gallons per capita per day (gpcd). TCWD plans to meet these target levels through implementation of the following activities.

- Passive and active conservation activities
- Water conservation program permanent restrictions
- Use of additional recycled water

Water conservation activities include the demand management measures (DMMs) that TCWD implements as a signatory member of the California Urban Water Conservation Council (CUWCC). DMMs include the development of water conservation programs and the education of TCWD customers on the subject of wise water usage. To encourage water conservation, TCWD recommends that developers apply water use efficiency measures, such as:

- Installation of Water Sense Specification Toilets
- Recommended use of High Efficiency Clothes Washers
- Recommended use of Smart Timer Irrigation Controllers for Landscaped Areas

TCWD adopted its Water Conservation Ordinance, No. 2008-18 (Ordinance) in January 2009. The Ordinance identifies permanent mandatory water use efficiency measures which contribute to the realization of the 2010 UWMP target levels. The Ordinance and the Water Conservation Program Permanent Provisions can be accessed via the District website at www.tcwd.ca.gov.

TCWD has a long standing practice of using recycled water, wherever possible, in order to offset the use of drinking water for irrigation purposes. TCWD will meet the reduction target levels through the continued use of recycled water in its service area, and any future developments where recycled water is available and infrastructure can be installed. Unfortunately, the use of recycled water is not an option for the Saddle Crest development. Currently, there is no recycled water available in the area.

Additionally, TCWD is a member of the Orange County 20x2020 Regional Alliance (Regional Alliance) which allows for flexibility in meeting the required per capita water use targets. If the Regional Alliance meets it water use target on a regional basis, then all member agencies are deemed compliant. If the Regional Alliance fails to meet its water use target, then each individual member will have an opportunity to meet their water use targets individually. These targets are subject to revision and can be updated in TCWD's 2015 UWMP.

It is acknowledged that the Saddle Crest project will exceed the 2020 water use target due to the irrigation requirements shown in Table 2-1 and the unavailability of recycled water to serve the site. Rutter Santiago, LP's previous sale of the Saddle Creek North and South parcel, and the significant reduction in the extent of development that will occur as a result, has, however, significantly decreased the projected demand on the District's water supplies.

2.0 Proposed Domestic Water System

This section will develop the water demands using water demand factors and address the source of supply, pressure zones, system layout, storage requirements, fire flow requirements and computer modeling utilized to develop the recommended on and off-site water facilities for the development.

2.1 Water Use Factors

Unit water use factors have been developed for this project based on the proposed lot sizes and open spaces to be irrigated, including private and homeowner association (HOA) slopes and other HOA landscaped areas, fuel modification zones and oak tree preservation areas. Domestic water demands were projected per unit based on the inside water usage and the average flat pad or lot size. As shown on Vesting Tentative Tract No. 17388, the average gross lot square footage for the 65 residential lots is 19,496 square feet with ranges from 13,723 to 31,941 square feet. A typical average lot was developed by assigning an average house footprint based on input from the developer and then typical hardscape and landscape areas were generated (see Appendix A). From these parameters, the average outside water use for the residential lots was developed. Common area or HOA landscape irrigation water demands were projected based on the conceptual landscaping plan provided by the landscape architect for the project, Bob Yamashita of L.A. Group Design Works. The types of plant materials and irrigation systems proposed were also discussed with the landscape architect. Finally, area takeoffs were generated for each type of HOA landscaping. These demand projections are detailed on **Table 2-1**. As shown on Table 2-1, the total demand for the project is 144,014 gallons per day (gpd) or 161 acre-feet per year (AFY). The average per dwelling unit demand is therefore 2,216 gpd (144,014/65). Based on the average demand per residential connection of 459 gpd/du reported in the District's 1999 Master Plan (Master Plan), the development has a demand of 314 equivalent dwelling units (144,014/459). This is primarily due to the large pads and substantial projected homeowner association irrigation for slopes and fuel modification areas.

From analysis of Table 2-1, the residential inside and outside demand is about 62% of the total demand. Developing a separate, non-domestic water system for common area irrigation demands for the project was investigated. However, TCWD has no non-domestic water available in the area of the project. Santa Margarita Water District's Oso Reservoir is the closest source but SMWD has no excess non-domestic water available in this system. Irvine Ranch Water District, whose boundaries are just across Santiago Canyon Road to the south and east, has no non-domestic water available in the area at all. Groundwater wells as a source for irrigation demands for the project was investigated but a good producing well in this area would be a rarity and also would not be a reliable year-round source in the quantities required. It is recognized that there could be a potential for a 39% savings to the developer in impact fees, but due to the fact that there are no non-domestic or reliable groundwater sources in the vicinity, domestic water was assumed to be the source for all water needs of the proposed project.

Table 2-1
Water Demand Projections

Water Use Category	Area (sf)	ETo in/yr	ETo ft/yr	Average Plant Factor for Hydrozone	Estimated Irrigation Efficiency (%)	Estimated Irrigation Rate (ac-ft/ac)	% of Eto	Estimated Average Demand (gpd)
Residential Water Use - 65 DUs								
Household (Interior)[a]								17,550
Landscape (Exterior)[b] [c]								
Turf & Pool (16 DUs pool equipped)	79,040	49.63	4.14	.70	50%	5.8	140%	9,381
Turf (49 DUs non-pool equipped)	205,036	49.63	4.14	.70	50%	5.8	140%	24,334
Other landscaping (16 DUs pool equipped)	88,336	49.63	4.14	.55	50%	4.5	110%	8,237
Other landscaping (49 DUs non-pool equipped)	307,553	49.63	4.14	.55	50%	4.5	110%	28,679
Subtotal Exterior	679,965							70,631
Residential Subtotal	679,965							88,181
HOA Common Area Irrigation								
Community Area Landscaping (Interior Slopes)	209,607	49.63	4.14	.40	60%	2.8	67%	11,846
Fuel MOD Zone B (Zone A incl. in pads)	747,786	49.63	4.14	.40	60%	2.8	67%	42,261
Area Around Retention Basin	30,528	49.63	4.14	.40	60%	2.8	67%	1,725
HOA Common Area Irrigation Subtotal	987,921							55,833
Total Project Demand								144,014
Average Demand/Dwelling Unit								2,216

(a) 270 gallons per dwelling unit (DU) per day (wastewater generation)

(b) Average lot size is 19,496 sf per VTM No. 17388, dated 06/15/11. Bldg. footprint assumed to be 4,615 sf, including garage. Hardscape assumed to be 4,420 sf. For non-pool equipped homes, assume remaining area (10,461 sf) is 40%Turf and 60% Other Landscaping (shrubs, ground cover, planters, etc.).

(c) Pool equipped assumptions: Front yard is 68'x35' Turf and remainder Other Landscaping. Rear yard is 80'x32' Turf/Pool and remainder Other Landscaping.

With the average annual demands shown in Table 2-1, and using maximum day peaking factors of 1.95 and 2.2 times average for residential and common area demands as developed in the Master Plan, respectively, we get a maximum day demand of 294,786 gpd or 0.46 cubic feet per second (cfs). Using a peak hour peaking factor of 2.47 and 2.0 times maximum day demand for residential and common area demands as developed in the Master Plan, respectively, we get peak hour demands as shown on **Table 2-2**, below. It should be noted, though, that the peak hour demands are not necessarily additive as most of the irrigation demands typically occur during the night or very early morning and not at the same time as the residential peaks.

Table 2-2
Average Day, Maximum Day, and Peak Hour Demands

Demand	Domestic Water Demand (gpd)	HOA Irrigation Demand (gpd)	Total Demand (gpd)
Average Day	88,181	55,833	144,014
Maximum Day	171,954	122,832	294,786
Peak Hour	424,726	245,664	670,390

2.2 Source of Supply

TCWD currently has a combined capacity to convey 9.94 cfs of reliable, year-round water supply from two imported water sources. This capacity includes 5.94 cfs in the Baker Aqueduct which conveys raw water to the District's Dimension WTP (DWTP), and 4 cfs through the Allen McColloch Pipeline (AMP) to the District, which is treated water. The District is currently participating in a regional water reliability project with others for the proposed design and construction of the IRWD Baker Regional WTP (Baker WTP). The Baker WTP is a regional water treatment facility with the District's plant capacity equating to approximately 2 cfs, or 1,450 AFY, increasing imported capacity to 12 cfs. Design of the facility commenced in 2010 with facility startup and operation scheduled for 2013.

2.3 Ridgeline Booster Pump Station

As discussed previously, the primary source of water for the District is the DWTP which provides water into the Cooks Reservoir pressure zone for further transmission to the rest of the distribution system. Three high service booster pumps at the DWTP have a combined capacity of 6 cfs and lift water from the clearwell directly into the Cooks Reservoir zone at an HGL of approximately 1,165 feet, equal to the maximum water level in Cooks Reservoir. Water is boosted from the Cooks Reservoir zone to the Harris Grade pressure zone by the Ridgeline Booster Station. This zone is also connected to three other water systems and two water districts, IRWD (Lake Forest), IRWD (Santiago), and

SMWD, through interties. The Ridgeline Booster Station has 2 pumps with a combined capacity of 5 cfs.

Before increasing demands in the Harris Grade pressure zone, the District needs to replace the diesel pump at Ridgeline and increase the capacity of the booster station to 6 cfs, to match the pumping capacity at DWTP. The Saddle Crest project site will connect to the Harris Grade pressure zone served by the Ridgeline Booster Station. The project will therefore be responsible for its pro-rata share of proposed upgrades to the Ridgeline Booster Station along. The District will be the lead agency in installing the improvements to the Ridgeline Booster Station and all improvements can be made within the walls of the existing booster station building.

2.4 Pressure Zones

Pad elevations within the Saddle Crest development range from 1320 to 1457 feet above sea level. The existing pipeline in Santiago Canyon Road adjacent to the project is part of the Harris Grade Reservoir pressure zone with a hydraulic grade line (HGL) of 1504 feet (full reservoir). In order to provide adequate pressure to customers, a planning guideline of providing a minimum static pressure of 60 psi at the highest service elevation is typically used in the initial layout of the proposed system. This way, a minimum dynamic pressure of 40 psi can usually be maintained with the reservoir at a lower than full level and with peak demands on the system. Additionally, adequate flows and pressures must be achieved under fire flow conditions. These conditions were modeled using the District's computerized hydraulic system model developed in conjunction with the 1999 Master Plan and updated to current conditions. Pressure zone boundaries were then adjusted slightly to achieve adequate pressures throughout the proposed development based on the model results.

The criteria discussed above results in a maximum service elevation of 1,365 feet for the Harris Grade pressure zone. Therefore, it is evident that a high-pressure zone is needed. The existing Santiago Estates development to the east of this proposed development constructed a booster pump station (Topanga Booster Station) to serve about a dozen of the highest elevation homes in their project. This pump station can be modified slightly, if required, to serve the additional homes that are in the higher zone of this proposed project. The existing Topanga Booster Station consists of two, 7.5-horsepower 120 gpm jockey pumps for low flow conditions and one, 100-horsepower 1,620 gpm fire flow pump for emergency conditions. The station also includes a 150-kW stand-by generator providing emergency power and a 7-foot diameter 3,600-gallon hydropneumatic tank to even out pressure surges in the system and keep the pumps from cycling continuously. However, a connecting pipeline from the end of the cul-de-sac on E Street in Saddle Crest would need to be constructed across APN 858-021-13 (Matthews) and APN 858-021-21 (Reilly) to connect with the end of the existing pipeline from this hydropneumatic zone. A tentative alignment for this pipeline is illustrated later in this report under the System Layout section.

As an alternative to this off-site pipeline, the developer could construct their own on-site booster station and hydropneumatic tank similar in design to the existing Topanga Booster Station on Lot 66 and connect a discharge line to the high pressure system within the tract.

2.5 Storage Requirements

The total storage requirements for the project are determined based on the criteria from the 1999 Water Master Plan, which calls for 10 hours of maximum day demand for operational storage, five average days for emergency storage, and fire flow requirements which for this project we understand from information provided by the developer are 1,125 gallons per minute for 1 hour. Using these criteria the total storage requirement is as shown in **Table 2-3**, below.

Table 2-3
Storage Requirement

Storage Type	Volume (MG)
Operational [(a)]	0.12
Fire [(b)]	0.07
Emergency [(c)]	0.72
Total	0.91

(a) 10 hours of Maximum Day Demand.
(b) 1,125 gpm fire flow for 1 hour.
(c) 5 days of Average Day Demand.

Water storage will be provided for the project through an on-site reservoir located near the top of the project as discussed in Section 2.6, below. Additionally, the District has expressed an interest in participating in the upsizing of this tank to accommodate storage for existing developments in order to increase system reliability by providing additional needed emergency storage. The District is considering adding an additional 1.0 MG to the proposed on-site reservoir bringing the total volume up to approximately 2 MG.

2.6 Computer Modeling and System Layout

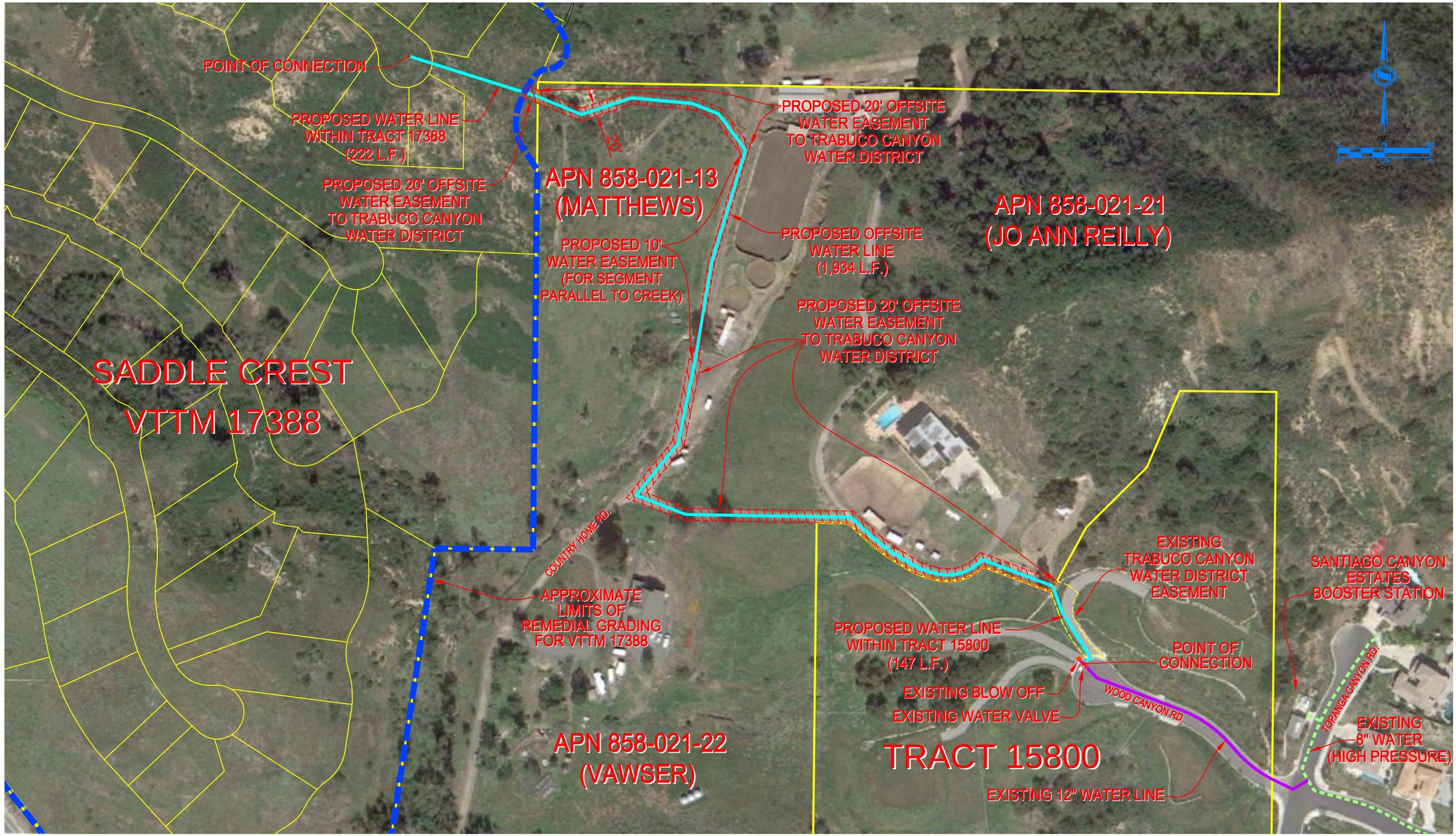
Water service to the Saddle Crest project can be extended from the existing 12-inch water line in Santiago Canyon Road that is boosted from the Ridgeline Booster Station to the Harris Grade pressure zone. With the on-site reservoir, head loss from the reservoir to the top of the gravity zone would be very minimal even under peak hour conditions; therefore, a static criterion of 60 psi as discussed above in the Pressure Zone section may be a little conservative for determining the break between the gravity zone and the high pressure system.

As discussed in Section 2.4, the upper pressure zone within the proposed project will either be served by the existing Topanga Booster Station located in the Santiago Estates development to the east or a new booster station located on Lot 66, as discussed earlier. With the Topanga Booster Station alternative, an offsite 12-inch pipeline would be constructed from the existing Topanga system, connecting at the end of Wood Canyon Road, across APN 858-021-13 (Matthews) and APN 858-021-21 (Reilly), and connecting to the project site at the end of "E" Street, the northern most cul-de-sac in Saddle Crest. The HGL of the Topanga system is approximately 1,604 feet and will provide sufficient fire and service pressure to the upper lots. A tentative alignment for this pipeline is illustrated on **Figure 2-1**.

The proposed onsite water facilities were added to the District's existing water system model using H_2ONet hydraulic modeling software. The proposed facilities were modeled using average day demands, peak hour demand, and maximum day demands plus fire flow. Fire flows were modeled at 1,125 gpm during maximum day demand conditions. Sufficient service and fire pressures were modeled using each scenario. Modeling results were used to determine pipeline diameters and the elevation of the on-site storage tank. The Harris Grade Reservoirs have a high water elevation of 1,504 feet. Though within the Harris Grade pressure zone, the on-site reservoir was raised to a high water elevation of 1,508 feet to account for the difference in head losses between the Ridgeline Booster Pump Station and the two reservoir sites. This allows for a more proportionate distribution of flow to the Harris Grade Reservoirs site, which supplies water to the entire eastern portion of the District. Once the high pressure system alternative is selected, hydraulic modeling for the selected alternative will be used to determine if any improvements to the Topanga Pump Station are required or to determine the size the onsite pump station. This modeling effort would also further evaluate the lots that would require individual pressure regulators.

The proposed water system facilities are illustrated on **Figure 2-2**. The high pressure zone served from Topanga would supply approximately 22 lots located along "E" Street and the uppermost portion of "A" Street. For added fire protection a normally closed valve will also connect the upper zone to the onsite reservoir. While sufficient service pressure is not available from this reservoir, its close proximity to the upper zone will provide the required fire flows meeting the minimum pressure requirement of 20 psi if needed during an emergency or failure of the booster pump station. The remaining project area will be served by the Harris Grade pressure zone, supplied by the Ridgeline Booster Station. The onsite reservoir would serve the lower project lots and add storage capacity to the Harris Grade pressure zone.

The on-site reservoir shown on the developer's VTM reflects a pad elevation of 1508' and the existing Harris Grade Reservoir has a high water level elevation (HWL) of 1504' with a pad elevation of 1473'. Since the same booster station (Ridgeline Drive) is pumping to both reservoirs, they should have nearly the same pad and HWL; otherwise one would fill first and then the altitude valve would close before the other one would fill. Likewise, the higher one would empty first before the lower one. A few feet difference is actually desirable based on modeled system head losses between the booster



NOTE:
LINEAR FOOTAGES SHOWN ARE APPROXIMATE.

PROPOSED OFFSITE WATER LINE

SADDLE CREST - VTTM 17388

FIGURE 2-1
PROPOSED OFFSITE WATERLINE EXTENSION

NORMALLY CLOSED VALVE

ONSITE RESERVOIR

OFFSITE WATERLINE EXTENSION NOT REQUIRED FOR ONSITE BOOSTER STATION ALTERNATE (PIPELINE WOULD TERMINATE AT END OF CUL-DE-SAC)

POINT OF CONNECTION TO PROPOSED OFFSITE WATER LINE EXTENSION (FIGURE 2-1)

12" PIPE

12"W

8"W

APN 868-011-08 (RAYMOND MILLS)

APN 868-021-19 (MATTHEWS)

APN 868-021-21 (JO ANN REILLY)

APN 868-021-22 (VANDER)

APN 801-011-14 (COUNTY OF ORANGE)

APN 801-011-15 (COUNTY OF ORANGE)

APN 868-041-02 TRACT 11819 SANTIAGO HILLS ESTATES

LEGEND

- W — PROPOSED 1504 ZONE PIPELINE
- W — PROPOSED 1604 ZONE PIPELINE
- EXISTING 1504 ZONE
- PROPOSED 1504 ZONE CUSTOMER
- PROPOSED 1604 ZONE CUSTOMER

ONSITE BOOSTER STATION ALTERNATE LEGEND

- PROPOSED 12" 1604 ZONE PIPELINE
- 1604 ZONE BOOSTER STATION & HYDRONEUMATIC TANK

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SCALE: 1"=300'

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FIGURE 2-2
DOMESTIC WATER SYSTEM
WITH ONSITE RESERVOIR

station and the reservoirs, as discussed below. Therefore, the on-site reservoir should be lowered to have a pad elevation around 1,484' and a HWL of approximately 1508'.

Using a high water elevation of 1,508 feet, the required storage volume of 910,000 gallons and a height of 24 feet, the diameter would be approximately 80 feet and the pad elevation would be 1,484. If a 32 foot height was selected, the diameter would be 70 feet and the pad elevation would be 1,476. These two heights are illustrated because steel reservoirs are typically constructed using 8-foot panels welded together. To upsize the reservoir to 2.0 MG, the diameter would be increased to about 103 feet with a 32 foot height. The extension of this Harris Grade pressure zone into the project will be from two connections to the existing 12-inch pipeline in Santiago Canyon Road to provide a strong, looped system, as illustrated on Figure 2-2.

Special design and construction methods such as pipe materials and slope anchors will need to be considered for the high pressure waterline to the Topanga Booster Station in both alternatives as well as the waterline in the easement between Lots 17 and 18 and down the slope to Santiago Canyon Road. The District's minimum easement width requirement is also 20 feet. It appears the easement between Lots 17 and 18 is a joint easement containing water, sewer and storm drain pipelines and how the access and working area is shared between the County and TCWD will need to be coordinated by the developer.

3.0 Wastewater System

3.1 Wastewater Flow Factors

Since all of the land uses within the proposed projects are similar residential uses, the only flow factor to be concerned with is the inside water use within the homes that is wasted to the sewer system. For this development, a unit flow factor of 270 gallons per day per unit will be utilized as shown previously in Table 2-1. Using the proposed 65 dwelling units, the Saddle Crest project will generate an average flow of 17,550 gallons per day.

3.2 System Layout

The minimum pipe size for gravity sewers per the District's standards is 8-inches in diameter and the Saddle Crest development is not large enough to warrant anything bigger than this. Therefore, all gravity sewer pipelines constructed for the project site will be 8-inch, except for private lateral sewers.

A portion of the Saddle Crest project will sewer to the southeast through three utility easements in the easterly portion of the property to Santiago Canyon Road where the sewer will connect to the existing 8-inch diameter line. As mentioned in the water section, the developer will need to coordinate with the County on sharing these easements to include sewer, water and storm drain pipelines, as shown on the developers VTM. The remainder of this project will sewer out the proposed entrance road to Santiago Canyon Road where it will also connect to the existing 8-inch sewer. The sewer line in the proposed easement out the back of the most northeasterly cul-de-sac along the easterly edge of Lot 47, then turning along the northerly edge of Lot 41, then down the slope between Lots 37 and 38 and Lots 25 and 26 will require special design and construction techniques. Preliminary designs for these steep sewers in easements should be submitted to the District to identify how they are going to meet District standards including maximum velocity, minimum easement width requirements of 20', and how access to all manholes will be achieved.

The proposed system layout for the wastewater collection system is shown on **Figure 3-1**. Any proposed easement areas are denoted on this exhibit.

3.3 Regional Collection, Treatment and Disposal Facilities

Regional wastewater facilities have been constructed to serve this general area in the past. The existing facilities consist of an interceptor sewer down El Toro Road, the El Toro Road Sewage Lift Station at the intersection of El Toro Road and Portola/Santa Margarita Parkway and a dual force main up Santa Margarita Parkway to near Los Alisos Boulevard. This system was constructed by Trabuco Canyon Water District and financed through Assessment District No. 85-1S (Portola Hills). Additionally, collection, treatment

APN 858-011-03
(RAYMOND MILLS)

APN 858-021-13
(MATTHEWS)

APN 858-021-21
(JO ANN REILLY)

APN 601-011-14
(COUNTY OF ORANGE)

APN 858-021-22
(VAWSER)

POINT OF CONNECTION

POINT OF CONNECTION

APN 601-011-13
(COUNTY OF ORANGE)

APN 858-041-02
TRACT 11919
SANTIAGO HILLS ESTATES

LEGEND

- EXISTING WASTEWATER PIPELINE
- PROPOSED 8-INCH WASTEWATER PIPELINE
- PROPOSED WASTEWATER MANHOLE

NOTE: MANHOLES AND ENDS OF PIPELINES SHOULD BE ADJUSTED DEPENDING ON DRIVEWAY/LATERAL LOCATIONS

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SCALE: 1"=300'

PSOMAS

FIGURE 3-1
WASTEWATER COLLECTION SYSTEM

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and disposal capacity was purchased from Santa Margarita Water District in their Chiquita System in two phases to complete this regional system. This capacity was financed through cash contributions from various property owners, Community Facilities District No. 2 (Portola Hills) and Assessment District No. 5 (various property owners).

The regional facilities constructed by TCWD (El Toro Road Sewage Collection System and Trunk Sewer Extension) were designed with what was projected at the time to be adequate capacity for the build out of the entire tributary area. Analysis of the existing development along with projected flows from the project area shows that there is adequate capacity in District ownership to serve the project.

Original landowners within the Saddle Crest project area, and previous Saddle Creek project areas, have already purchased collection, treatment and disposal capacity in this regional sewer system. The capacities for the Saddle Creek project areas have since been transferred to the Saddle Crest project. A summary of the original landowners making up the Saddle Crest and previous Saddle Creek developments along with other properties, the amount of capacity originally purchased in equivalent dwelling units, and their capacity is shown on **Table 3-1** for reference only.

Table 3-1
Sewer Capacity Allocation by Original Property Owner

PROPERTY	ORIGINALLY PURCHASED CAPACITY		CURRENT CAPACITY USED OR PURCHASED
	GAL/DAY	EDU [1]	EDU
Southmark Pacific (Calif. Quartet)	200,000	740	0
Santiago Estates (Beazer)	20,000	74	74
Seventh Day Adventist (Saddle Crest)	5,000	18	0
Edgar (Saddle Crest)	6,480	24	0
Edgar (Saddle Creek)	17,520	65	0
St. Michaels	9,850	36	36
Zadeh	5,400	20	4
Live Oak Ltd.	6,000	22	0
Portola Hills (TCWD Portion)	158,000	585	532
Rancho Las Lomas (Lawrence)	0	0	5
Cook's Corner	0	0	2
Total	428,250	1584	650

1) Equivalent Dwelling Units are based on an average flow of 270 gpd/du

4.0 Project Costs

4.1 Domestic Water System

The engineer for the developer will be responsible for preparing a cost estimate for all on and offsite water facilities that are to be constructed to serve the project. The costs of some of the offsite, high-pressure pipelines and improvements to the Topanga Booster Station should be shared on a pro-rata basis through a reimbursement agreement or such other means that can be arranged between the various property owners that will eventually take service from these facilities.

The cost to upgrade the Ridgeline Booster Pump Station will be determined by the District prior to issuance of a will serve letter.

The developer will be responsible for the construction of adequate onsite storage for their project's water demands Additionally, the District is interested in upsizing the reservoir to increase existing system storage for existing customers in the western portion of the District on the order of an additional 1.0 million gallons. From historical unit project costs for steel tanks in the range of one to two million gallons, the unit construction cost runs approximately $0.75 per gallon and including technical services, administration and contingencies runs approximately $1.10 per gallon (not including land acquisition and grading costs, which vary significantly depending on the site). Therefore, the Saddle Crest developer's share of the estimated cost for the new Reservoir at 0.91 million gallons would be on the order of $1,000,000.

The District had originally allocated water to the Saddle Creek and Saddle Crest development for the purpose of determining Supplemental Water Capacity Fees. **Table 4-1** shows this water allocation under the water dwelling units, "Water DU", column. Up to 205 water DUs were allocated to the original project, corresponding to the amount of water supply capacity available to the parcels based on the County's 1985 land use plan that corresponded to the amount of water supply that TCWD had at that time. The District has since purchased additional water supply capacity and the developer must pay for the shortfall between the property's water allocation amount and the total needed. Final allocation of water dwelling units for the purpose of calculating Supplemental Water Capacity Fees will be determined by the District in coordination with the development and prior to issuance of a Will-Serve-Letter by the District. The Will-Serve-Letter will also include Capital Improvement Charges based on total water demand of 144,014 gallons per day that equates to 314 EDUs and based on current rates per EDU.

Table 4-1
Saddle Creek and Saddle Crest Water Allocations

Development/Parcel Name	Acreage (approximate)	Assessor's Parcel No.	Water DU
Saddle Creek			
4S Ranch North	385.96	858-031-01	66
4S Ranch South	(incl. In North)	856-021-03&19	40
Harris	2.21	856-021-08,14&18	3
Watson	98.15	858-021-10&11	41
Subtotal	**486.32**		**150**
Saddle Crest			
Edgar (Panter Ranch)	32.65	858-011-09	16
Lutheran Church (Austin)	14.65	858-011-08	7
Shefflette (Panter Ranch)	18.94	858-011-06&07	9
7th Day Adventist Church	47.37	858-021-02,16&17*	23
Subtotal	**113.61**		**55**
Total	**599.93**		**205**

The assumption is that the water allocation from the Saddle Creek and Saddle Crest projects will be reallocated to this project and not retained with the land sold as open space similar to the sewer capacity. It should be noted that the assumption is made that the developer will design and construct a storage reservoir to provide for their water storage requirement so no Water Storage Fee is included. It should also be noted that the developer will be required to fund the construction of the expansion/upgrade of the Ridgeline Drive Booster Station as well as any on-site pipelines and appurtenances, the offsite pipeline connection to the Topanga Pump Station system, and any improvements required at that station, if necessary or a similar booster pump station on Lot 66.

4.2 Wastewater System

The Saddle Crest project will connect into a portion of the existing sewer in Santiago Canyon Road that was paid for by the developer of Tract 12365. A capacity ownership buy-in to this sewer line may potentially be required. The developer has supplied the costs of the pipeline reaches to the District. The reach of sewer subject to this pro-rata buy-in is the existing 8-inch sewer in Santiago Canyon Road from the Saddle Crest project to Ridgeline Drive. As soon as the costs provided by the developer are reviewed and the reimbursement agreement is formalized, this potential pro-rata buy-in cost can be determined.

As discussed previously in Section 3, the project will be responsible for buying in to the regional El Toro Road Sewage Collection System. The first leg of this system was financed by Assessment District No. 85-1S and brought a sewer up old El Toro Road to just south of Ridgeline Drive. Assessment District No. 5 financed the extension of this system up El Toro Road to Cook's Corner (Reach 1) and then up Santiago Canyon Road to its intersection with Ridgeline Drive (Reach 2). The Saddle Crest project has surplus capacity in these regional systems by virtue of its capacity ownership from the Edgar and Seventh Day Adventist parcels and from the previous Saddle Creek project areas. The Assessment District No. 5 allocation shown in Table 3-1, allocates 42 units to Saddle Crest (Edgar Saddle Crest plus Seventh Day Adventist) and 65 units transferred to Saddle Crest from the previous Saddle Creek project areas. The combined project allocation of 107 units provides more than sufficient sewer capacity for the project which has 65 units leaving 42 units of surplus capacity. This capacity ownership does not apply to the sewer constructed up Santiago Canyon Road from Ridgeline Drive to the Saddle Crest project however, which may be subject to a buy-in, as mentioned previously.

APPENDIX A
Typical Lot Layout

1" = 20'

= HARDSCAPE

Shrubs, Ground Cover, or Other Landscaping